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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,045	11/06/2003	Young-soo Kim	249/422	7399
27849	7590	01/19/2007		
LEE & MORSE, P.C. 3141 FAIRVIEW PARK DRIVE SUITE 500 FALLS CHURCH, VA 22042			EXAMINER BELANI, KISHIN G	
			ART UNIT	PAPER NUMBER
			2112	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/702,045

Applicant(s)

KIM ET AL.

Examiner

Kishin G. Belani

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 05/18/2006, 06/07/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statements submitted on 05-18-2006 and 06/07/2004 have been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-10, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by **Jiang (U.S. Patent Publication # 7,058,076 B1)**.

Consider **claim 1**, Jiang clearly shows and discloses a network architecture for a mobile communication system (Abstract; Fig. 1; column 2, lines 3-11, that disclose a

wireless network architecture for a mobile communication system), the network architecture comprising:

a plurality of Internet protocol (IP) routers which serve as gateways for transmitting data from one mobile terminal, which is a sending party, to another mobile terminal, which is a receiving party, over a public Internet network (Fig. 1, blocks 15, 20 acting as IP routers, sending mobile station 90, receiving mobile station 95, and the Internet; column 2, lines 35-40 that describe a "Wireless INfrastructure Network" WINN 100 as comprising a plurality of IP routers 15 and 20, transmitting (91) data from mobile station 90 to a second mobile station 95 that receives (97) the data via the public Internet network);

a home agent (HA) located on the public Internet network, the HA carrying out initial registration of mobile terminals, IP routing, and management of mobility of the mobile terminals (Fig. 1, block 25 marked MM server; column 3, lines 57-60, that disclose server 25 as a mobility management (MM) server (interpreted to be the home agent (HA) by the examiner), which is used to manage micro mobility of mobile terminals, inherently understood to include initial registration of the mobile terminal);

an authorization authentication accounting (AAA) server located on the public Internet network, separate from the HA, the AAA server carrying out authorization, authentication and accounting for the mobile terminals such that the mobile terminals access the public Internet network and storing AAA information of each of the mobile terminals (Fig. 1, block 5; column 3, lines 48-50, that disclose the AAA server, which carries out the authorization, authentication, and accounting functions);

Art Unit: 2112

and a plurality of radio access points (RAPs) which are respectively connected to the public Internet network via the IP routers, the RAPs connecting the mobile terminals to the public Internet network (Fig. 1, blocks 21-24; column 2, lines 35-40, that disclose a plurality of base stations 21-24, connecting mobile terminals 80, 90 and 95 to the Internet via IP routers 15 and 20).

Consider **claim 4**, and **as applied to claim 1 above**, Jiang clearly shows and discloses that at least one of the RAP, the AAA server and the HA encapsulates control information data to be transmitted (Fig. 2, Base Station block 200 that shows wireless air interface for communication with mobile stations, and IP packet network interface; Fig. 3, Processor block 210 that shows control information being encapsulated; column 2, lines 9-11, which disclose that base stations (RAPs) comprise a router and convert (encapsulate) wireless air interface signaling to a common IP signaling format; column 3, lines 36-38, which disclose that the routing is separated from signaling, signaling being interpreted by the examiner to be the control information).

Consider **claim 5**, and **as applied to claim 4 above**, Jiang discloses that the RAP assigns a higher priority to encapsulated control information data than to other types of data (Fig. 7, protocol LIPE (Lightweight Internet Protocol Encapsulation); column 6, lines 45-56, that describe Quality of Service (QoS) support for signaling data using Multi Protocol Label Switching (MPLS), differentiated services (DiffServ), or

Resource Reservation Protocol (RSVP) to assign priority to the encapsulated control information).

Consider **claim 6**, and **as applied to claim 1 above**, Jiang clearly shows and discloses that RAP directly transmits user data to the public Internet network via the IP routers (Fig. 1, that shows base stations 21-24 wired to IP routers 15 and 20 and connected to the Internet by gateway; column 3, lines 36-42, which disclose that routers 15 and 20 directly transmit IP traffic interpreted to be user data to the public Internet network).

Consider **claim 7**, and **as applied to claim 1 above**, Jiang discloses that the RAP transmits location information of a mobile terminal to the HA (column 5, lines 4-9, which disclose that the communications arriving at the base station from wireless endpoints (interpreted by examiner to include location information of the mobile terminals) are routed to any other node in WINN 100 (one of the node being Home Agent HA).

Consider **claim 8**, and **as applied to claim 1 above**, Jiang discloses that the HA further performs route optimization (column 3, lines 15-24, which disclose that the traffic between two mobile users is routed on the shortest path of WINN 100 (that contains Home Agent HA) just between the base stations, and access charges by the local telephone companies being avoided, thereby performing route optimization).

Consider **claim 9**, and **as applied to claim 1 above**, Jiang clearly shows and discloses that RAP further performs general radio link functions (Fig. 3, that shows radio link function in the base station interpreted to be RAP; column 4, lines 48-52, that describe the protocol stacks in the design of base station 200, including radio link functions handling signaling for the wireless air interface).

Consider **claim 10**, Jiang clearly shows and discloses a communication method in a network architecture for a mobile communication system, the network architecture including a plurality of Internet protocol (IP) routers, a home agent, an authorization authentication accounting (AAA) server and a plurality of radio access points (RAPs), (Fig. 1; column 2, lines 3-5, that disclose a communication method in a wireless network architecture for a mobile communication system that includes IP routers 15 and 20, MM server 25 (interpreted to be Home Agent HA), AAA server 5, and base stations 21-24 (interpreted to be RAPs)), the communication method comprising: transmitting control information data using a first communication manner (Fig. 1, blocks 15, 20 functioning as IP routers, base stations 21-24 functioning as RAPs, MM server 25 functioning as home agent, and AAA server that together make up a first communication manner processing signaling (control) information; column 3, lines 36-60 that describe the structural details of the first communication manner as shown in Fig. 1 and listed above); and

transmitting user data using a second communication manner, wherein the control information data and user data are separately processed and transmitted (Fig. 1, blocks 21-24 base stations (RAPs), IP routers 15 and 20, gateway 30, and the Internet that together make up the second communication manner used to transmit user data directly to the Internet, thereby separating processing control information data from the user data, as described in column 3, lines 36-42).

Consider **claim 15**, and **as applied to claim 10 above**, Jiang clearly shows and discloses a method showing how the second communication manner includes directly transmitting the user data of each mobile terminal to the public Internet network (Fig. 1, blocks 21-24 base stations (RAPs), IP routers 15 and 20, gateway 30, and the Internet that together make up the second communication manner used to transmit user data directly to the Internet, as described in column 3, lines 36-41).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 3, 11-14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jiang (U.S. Patent Publication # 7,058,076 B1)** in view of **Peirce, Jr. et al. (U.S. Patent Publication # 6,560,217 B1)**

Consider **claim 2**, and **as applied to claim 1 above**, Jiang shows and discloses the claimed invention except that the home agent, the AAA server, and the plurality of RAPs are constructed to support a safe communication path.

In the same field of endeavor, Peirce, Jr. et al. clearly show and disclose (Fig. 2, that shows a multiplicity of IWFs 13A, 13B, 13C and 13D, interpreted to be the RAPs, home agent 26 and AAA server; Fig. 3 that shows home agents 1, 2, ..., N using VPN tunnels TUN 1, 2, ..., N; column 4, lines 30-35, which disclose that each home agent is assigned to one virtual private network in order to provide a secure communication path).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a secure communication path, as taught by Peirce Jr. et al. in the method of Jiang, so that the security of the control information circulating between RAPs, HA, and AAA on the Internet can be maintained.

Consider **claim 3**, and **as applied to claim 2 above**, Jiang shows and discloses the claimed invention except the safe communication path includes a virtual private network (VPN).

In the same field of endeavor, Peirce, Jr. et al. clearly show and disclose (Fig. 2, that shows a multiplicity of IWFs 13A, 13B, 13C and 13D, interpreted to be the RAPs, home agent 26 and AAA server; Fig. 3 that shows home agents 1, 2, ..., N using Virtual Private Network (VPN) tunnels TUN 1, 2, ..., N; column 4, lines 30-35, that disclose that each home agent is assigned to one virtual private network in order to provide a secure communication path).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a secure communication path in the form of

Virtual Private Network tunnels for example, as taught by Peirce Jr. et al. in the method of Jiang, so that the security of the control information circulating between RAPs, HA, and AAA on the Internet can be maintained.

Consider **claim 11**, and **as applied to claim 10 above**, Jiang shows and discloses the claimed invention except that the first communication manner comprises securing a safe communication path by performing communication between the plurality of RAPs, between the RAPs and the home agent, and between the RAPs and the AAA server.

In the same field of endeavor, Peirce, Jr. et al. clearly show and disclose a method by providing a safe communication path by performing communication between the plurality of RAPs, between the RAPs and the home agent, and between the RAPs and the AAA server (Fig. 2, that shows a multiplicity of IWFs 13A, 13B, 13C and 13D, interpreted to be the RAPs, home agent 26 and AAA server; Fig. 3 that shows home agents 1, 2, ... , N using VPN tunnels TUN 1, 2, ... , N; column 4, lines 30-35, that disclose that each home agent is assigned to one virtual private network in order to provide a secure communication path).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a secure communication path, as taught by Peirce Jr. et al. in the method of Jiang, so that the security of the control information circulating between RAPs, HA, and AAA on the Internet can be maintained.

Consider **claim 12**, and **as applied to claim 11 above**, Jiang shows and discloses the claimed invention except securing a safe communication path includes using virtual private network (VPN) services.

In the same field of endeavor, Peirce, Jr. et al. clearly show and disclose a method by providing a safe communication path includes using virtual private network (VPN) services (Fig. 2, that shows a multiplicity of IWFs 13A, 13B, 13C and 13D, interpreted to be the RAPs, home agent 26 and AAA server; Fig. 3 that shows home agents 1, 2, ..., N using Virtual Private Network (VPN) tunnels TUN 1, 2, ..., N; column 4, lines 30-35, that disclose that each home agent is assigned to one virtual private network in order to provide a secure communication path).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide secure communication path in the form of Virtual Private Network tunnels , as taught by Peirce Jr. et al. in the method of Jiang, so that the security of the control information circulating between RAPs, HA, and AAA on the Internet can be maintained.

Consider **claims 13 and 17**, and **as applied to claim 12 above**, Jiang as modified by Peirce, Jr. et al. also shows and teaches by the method of his invention that the first communication manner comprises encapsulating the control information data (Fig. 2, Base Station block 200 that shows wireless air interface for communication with mobile stations, and IP packet network interface; Fig. 3, Processor block 210 that shows control information being encapsulated; column 2, lines 9-11, which disclose that base

Art Unit: 2112

stations (RAPs) comprise a router and convert (encapsulate) wireless air interface signaling to a common IP signaling format; column 3, lines 36-38, which disclose that the routing is separated from signaling, signaling being interpreted by the examiner to be the control information).

Consider **claims 14 and 18, and as applied to claim 13 above**, Jiang as modified by Peirce, Jr. et al. also shows and teaches by the method of his invention how to set a higher priority for the encapsulated control information data than to user data. (Fig. 7, protocol LIPE (Lightweight Internet Protocol Encapsulation); column 6, lines 45-56, that describe Quality of Service (QoS) support for signaling data using Multi Protocol Label Switching (MPLS), differentiated services (DiffServ), or Resource Reservation Protocol (RSVP) to assign priority to the encapsulated control information).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jiang (U.S. Patent Publication # 7,058,076 B1)** in view of **Juitt et al. (U.S. Patent Publication # 7,042,988 B2)**

Consider **claim 16, and as applied to claim 10 above**, Jiang shows and discloses the claimed invention except the second communication manner is less secure than the first communication manner.

In the same field of endeavor, Juitt et al. disclose that the second communication manner is less secure than the first communication manner (Column 2, lines 21-23,

which disclose a method for using Virtual Private Networks (VPNs) to provide security for wireless networks. Since the first communication manner uses VPN for transmitting control data, it is more secure than the second communication manner which does not use VPN or any other security protocol).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide more secure communication manner using VPN or any other secure protocol for transmitting control information than for transferring user data, as taught by Juitt et al. in the method of Jiang, so that the security of the control information containing vital user information circulating between RAPs, HA, and AAA on the Internet can be maintained.

Double Patenting

Claims 17 and 18 objected to under 37 CFR 1.75 as being a substantial duplicate of **claims 13 and 14** respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Applicant is advised that should claims 13 and 14 be found allowable, claims 17 and 18 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after

Art Unit: 2112

allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US Patent publication: 6,992,995 B2, inventor: Agrawal et al., issued: 01/31/2006

US Patent application publication 2003/0208601 Campbell et al. filed: 10/25/2001

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Art Unit: 2112

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kishin G. Belani whose telephone number is (571) 270-1768. The Examiner can normally be reached on Monday-Thursday from 6:30 am to 5:00 pm.

Art Unit: 2112


If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Perez Gutierrez can be reached on (571) 270-1767 or (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Kishin G. Belani
K.G.B./kgb

December 26, 2006


RAFAEL PEREZ-GUTIERREZ
SUPERVISORY PATENT EXAMINER
1/16/07